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Tools to put the wheels on EA

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Modeling software canbring agency enterprise architecture plans closer to reality

There are plenty of good reasons to map out an enterprise architecture. Enterprise architecture models—and the tools that create them—can take the sting out of integrating agency functions, launching new initiatives, or just optimizing existing functions and IT investments. Even so, there's really only one reason why enterprise architecture is so popular in government these days—it's mandatory.

With the passage of the Clinger-Cohen Act in 1996, federal agencies had to better manage their enterprise architectures; the act mandated an overall blueprint for agencies' IT systems. This year, the Office of Management and Budget has made completing these models of agency systems and processes—and aligning spending requests with those models—a requirement for getting new funds.

"It's a combination of homeland security, e-government, and Clinger-Cohen—all these things are driving [EA]," said Jan Popkin, president of modeling software company Popkin Software. "We've seen a lot of growth, particularly over the last three years, and we're seeing [modeling] being used now across agencies to build an enterprise architecture."

With enterprise architectures now an OMB requirement, agencies are conducting the Mother of All Systems Audits. In a way, it's unfortunate that they're starting to model enterprise architectures in earnest mostly at budgetary gunpoint. But that doesn't mean they can't turn all that work to their benefit.

Most of the work agencies have done so far isn't easily leveraged for things such as operational analysis and integration planning. The enterprise architecture documents now being submitted to OMB were produced in nothing more sophisticated than a word processor, government IT managers say.

The vision of a unified government enterprise architecture is a holistic, frequently updated electronic model that makes the government's IT investments more efficient and effective. But the current reality is more familiar to people who have dealt with project documentation—thousands of pages of manually created documents that will probably

never be read.

Fortunately, OMB's adoption of Extensible Markup Language standards for reporting—and the emergence of a host of modeling, software management and documentation tools—promises to make the process a bit easier and more useful in the near future.

That's the goal of agencies such as the National Oceanic and Atmospheric Administration, where IT architect Ira Grossman is steering the agency—and, by its example, the rest of the Commerce Department—toward tools to generate enterprise architecture documentation and make models for business and IT planning.

"Some people see [EA] as an end in itself," Grossman said. "But essentially, using the federal enterprise architecture framework as a reference point, what we're doing is tying the enterprise architecture, the business, the information, the applications and the technical infrastructure to the mission of our organization."

The key to that is not just modeling the enterprise but effectively turning that model into a decision-support tool. "Models aren't just pretty pictures," Grossman said. "You can [program] those models with behaviors that allow you to ask questions and do analysis pretty easily. So you can bring those enterprise models right into your ongoing business processes—how you make decisions."

Making that connection means going beyond the relatively simple tools used so far—mostly office automation packages such as Microsoft Office or specialized drawing programs. A new generation of tools is helping organizations quickly turn information about their business processes, organizational structure and data infrastructures into dynamic models for analysis, simulation of changes and new ways to increase organizational efficiency.

Business processes

Some software can even automate much of the implementation of new business processes in enterprise software. "It's two ideas coming together at the right time," Popkin said. "I think the opportunity arose because of Web services—Microsoft's .Net and IBM Corp. initiatives, for example." Software vendors needed something to map how Web services and other distributed application technologies would work together. "Business process modeling dealt with this," he said.

The largest effort to date by the government to handle the data related to enterprise architecture is the Information Technology Investment Portfolio System, at www.itips.gov. A Web decision-support application initially developed by the Energy Department, I-TIPS is now a self-sustained activity, funded through service-level agreements with participating agencies.

But the tools available don't completely take the sting out of going the final mile to meet OMB's requirements. "Right now, there's a lot of pain and heartache," Grossman said.

“Every time, they’re going back and asking for the same info over and over again. It’s a very manual process. The first version of I-TIPS was not user-friendly and was very difficult to use. It is not as efficient as it could be.”

There are plenty of tools to help capture information about IT assets, Grossman said. The challenge is incorporating them into an enterprise architecture.

Modeling tools can help analysts and managers get a handle on lines of business, but stitching those models together and pulling all the related data about organizational processes into them is a challenge better suited to software with elements of knowledge management, rules-based workflow and content management. Those challenges have brought a whole new class of enterprise architecture management tools into the marketplace. One being used at NOAA, is Computas Inc.’s Metis software.

Find efficiencies

Metis initially worked with private-sector organizations trying to make their business processes more efficient. Boeing Co. used the software to model and analyze its supply chain, for example. The only real difference between Metis’ commercial customers and government customers, said Bill Wright, the company’s president and CEO, is that “they don’t have an OMB to work with.”

Wright said Metis’ work in knowledge engineering led it to build software that could help users more effectively capture and use employees’ knowledge about the way things get done, but in a Web architecture. “We wanted an intelligent tool for knowledge capture,” designed not as a database tool but as a graphical Web application, he said. Metis is based entirely on XML technology and uses drawings and graphical data to analyze process information and generate customized views of that data.

“Part of the logic is that there are many users of this information,” Wright said. “Each user has a limitation in terms of scope of interest.”

Using a tool that supports XML can make it easier to integrate enterprise architecture processes with the Federal Enterprise Architecture Program Management Office’s Business Reference Model, to file the required OMB reports and to customize the types of decision support required by each organization.

Grossman said these tools will make enterprise architecture work for government over the long run, but there’s still some growing to do. “We’re not there yet, but in two years we will be,” he said.

Kevin Jonah, a Maryland network manager, writes about computer technology.